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IDA MEMORANDUM REPORT M-296

EXPORT CONTROL OF THE Ada\*  
COMPILER VALIDATION CAPABILITY (ACVC)

Audrey A. Hook

February 1987

Prepared for  
Ada Joint Program Office

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**EXPORT CONTROL OF THE Ada  
COMPILER VALIDATION CAPABILITY (ACVC)**

Audrey A. Hook

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**INSTITUTE FOR DEFENSE ANALYSES**

Contract MDA 903 84 C 0031  
Task T-D5-304

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**Dr. Robert Winner - CSED**

**Cesare Rosati - STD, Export Control**

**Bill Carlson - Chairman, Export Control Task Force, Ada Board**

## 1.0 PURPOSE

The purpose of this IDA Memorandum Report is to provide the Ada Joint Program Office (AJPO) with a rationale for developing an Ada Program position on export control for the Ada Compiler Validation Capability (ACVC).

## 2.0 BACKGROUND

In April 1986, Virginia L. Castor (Director, AJPO) established a Task Force composed of Ada Board members for the purpose of investigating and interpreting the United States Regulations that apply to Ada technology. The Task Force report to the Ada Board (22 July 1986) provided the following information:

"On December 18, 1985, the Commerce Department issued Part 379 Technical Data of the Export Administration Regulations. Part 379 of the Commerce Department regulations specifically lists Ada Programming Support Environments (APSE) and subsets of APSE including compilers. Thus, these listed items are controlled by the Commerce Department and not the State Department. To be controlled by the State Department and fall under ITAR restrictions, items must be included on the munitions list. Ada is not on the munitions list, thus State has no jurisdiction. JOVIAL, on the other hand, is on the munitions list and thus falls under the ITAR restrictions.

According to Dr. DeSantis (DoD - Deputy Director of Strategic Trade - Technical), under Commerce Department regulations, there are minimal controls on West-West transfer of Ada technology. To export Ada technology, an exporter needs written assurance from the importer that neither the technical data nor the direct product thereof is intended to be shipped, either directly or indirectly, to a communist or a communist aligned country. Written assurance is a letter on file from the importer to the exporter."<sup>1</sup>

The specific classification of the ACVC was not addressed by the Task Force nor was a list of "approved" countries provided. However, Part 379 Technical Data of the Export Administration Regulations (hereafter referred to as Part 379) was distributed to Ada Board Members as a reference to provide guidance in determining a probable classification of the ACVC and the type of control placed upon its distribution and use.

During the sixth Ada Validation Facility (AVF) Managers Meeting (19-20 November 1985), a request was made to the AJPO to produce an official list of countries that are approved for the distribution of the ACVC. The AJPO assigned to IDA the task of responding to this request. Although IDA cannot prepare an "official" list of countries for the AVF managers, this memorandum report should provide the AJPO with the information needed to develop an AJPO policy for export control of the ACVC.

## 3.0 SCOPE

Part 379, including its supplements, was the primary reference for this analysis. Working notes from AVF managers and Ada Board Minutes provided secondary reference

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<sup>1</sup> Memorandum from Bill Carlson to Virginia Castor, dated 5 June 1986.

material. This report is *not* an exhaustive analysis of *all U.S. Commerce Department regulations*, nor is it a *legal* opinion on the interpretation of Part 379 and its supplements.

#### 4.0 FINDINGS

The following section addresses the elements of the ACVC export problem and provides a rationale to support conclusions with respect to these problem areas. The rationale for these conclusions has been based upon relevant sections of Part 379 and its supplements. Specific paragraph references have been cited.

##### 4.1 Finding: General License Classification

There are two types of General Licenses that could apply to the ACVC. These two licenses are The General License GTDA: Technical Data Available to All Destinations (Ref. 379.3) and The General License GTDR: Technical Data Under Restriction (ref. 379.4).

DISCUSSION: The General License GTDA: Technical Data Available to all Destinations (Ref. 379.3) includes three categories of data:

- data generally available
- scientific or educational data
- patent applications

The ACVC could be considered as belonging to the category of data generally available since it is available to the public at only a nominal cost. This category of available data refers to data released orally or visually at open conferences, lectures, trade shows, or other media open to the public and publications that may be purchased (at nominal cost) without restrictions or is available at public libraries. However, the ACVC consists of software and user documentation that can be used as a development tool for an Ada compiler and it is explicitly subject to provisions of the General License GTDR: Technical Data Under Restriction (ref. 379.4).

The GTDR was established to authorize the export of technical data that are not exportable under the provisions of the General License GTDA: Technical Data Available to all Destinations. All technical data in the GTDR category are subject to the written assurance requirement set forth in paragraph 379.4(f). These written assurance requirements state that:

"No export of technical data of the kind described in paragraph 379.4(f)(1)(i) (a) through (o) [not (p) or (r)] of this section may be made under the provisions of this General License GTDR until the exporter has received written assurance from the importer that neither the technical data nor the direct product thereof is intended to be shipped either directly or indirectly, to Country Group Q, S, W, Y or Z or Afghanistan or the People's Republic of China, except as provided in paragraph 379.4(f)(1)(ii) below."

(Note: Paragraph 379.4(f)(1)(ii) is not relevant to this discussion because it deals with filing patents and sales data to support a price quotation.)

Paragraph 379.4(f)(1)(i)(a) describes technical data that is sufficiently general to include the ACVC. This paragraph states: "Electronic computers, if the technical data is software listed in Supplement No. 3 to Part 379."

The Supplement No. 3 to Part 379 provides definitions of software that is subject to GTDR, including a category of software that identifies Ada software tools for producing development or production software. Even though the ACVC is a compliance measurement tool for another tool, namely a compiler, it is part of an Ada development system.

**CONCLUSION:** The ACVC software should be classified under Supplement 3, Section (b)(1)(ii) of Part 379. This classification places it under the section of "development systems." Its distribution is subject to the GTDR.

#### 4.2 Finding: General Distribution Requirements

Under the GTDR, the ACVC may be exported to members of Country Groups T and V and Canada after written assurances from them are on file (Ref. 379.4 and Supplement No. 1 to 379).

**DISCUSSION:** For export control purposes, foreign countries are separated into eight country groups designated by alphabetic symbols. Appendix A is a copy of Supplement 1, page 1 which lists the Country Groups. Country Group V includes all countries not listed in other groups except Canada which is not included in any country group.

Specific reference to Canada is made in the Export Administration Regulations in footnote 7, paragraph 379.2 "Licenses to Export". This footnote states that only the restrictions set forth in paragraph 379.4(c) apply to Canada and that a license is not required for export of other types of technical data. The restrictions cited in paragraph 379.4(c) concern the export of technical data related to nuclear technology. Therefore, for purposes of developing an ACVC distribution policy, Canada should be treated as a member of the Country Group V.

The People's Republic of China is included in Country Group V but export to that country requires the exporter to obtain a validated license for each instance of software export. Supplement No. 3 states that:

"Software described in this Supplement is subject to the written assurance requirements of paragraph 379.4(f)(1)(i) (a) and requires an individual validated license for export to Country Groups Q, S, W, Y, Z, the People's Republic of China and Afghanistan."

The list of countries that the ACVC can be exported to, subject to written assurance from the importer can be deduced from Supplement No. 1 and No. 3. The list of countries in Country Group T which includes specific countries in North and South America is provided in Appendix A. Country Group V contains a list of countries that do not appear on any other list. Since the request from the AVF managers was for a list of countries that they can export to, the following is a representative list of countries included in Country Group V.

1. Austria
2. Belgium
3. Denmark
4. Finland
5. France



6. Germany, Federal Republic of
7. India
8. Iran<sup>2</sup>
9. Israel
10. Italy
11. Japan
12. Netherlands
13. Norway
14. Portugal
15. South Korea
16. Spain
17. Sweden
18. United Kingdom (including members of the Commonwealth)

Since this is only a representative list of countries, we did not list all African and Asian countries that do not appear on any other list. There is no general prohibition against the use of GTDR to these countries. Specific exclusion must be specified in the regulations since the exporter decides on the applicability of GTDR to any given export.

Provision has been made for re-export to an unauthorized destination. If an AVF manager has a request for the ACVC from a country that is not in Country Groups T or V, the manager must initiate a request to the Department of Commerce for a one-time validated license to re-export. Section 379.7 "Re-exports of Technical Data and Exports of the Product Manufactured Abroad by Use of U.S. Technical Data" provides the information needed to apply for a validated license. This section of Part 379.7 also deals with the effect of foreign laws and individual responsibility to comply with the provision of U.S. Export Regulations. There are two parts to this responsibility:

1. No authority granted by the U.S. Office of Export Administration relieves any person from full compliance with the laws, rules, and regulations of the country from which re-export will be made.

2. No foreign law, rule, regulation or authorization relieves any person from full compliance with the U.S. Export Administration Regulations.

**CONCLUSION:** AVF managers in the United Kingdom and Europe are members of Country Group V. As importers of the ACVC, these AVF managers should provide written assurance to the exporter (Wright-Patterson AFB) that they will not re-export the ACVC to Country Groups Q, S, W, Y, Z, the People's Republic of China and Afghanistan. This written assurance should also include acknowledgement of their personal responsibility to obtain a validated license from the U.S. to re-export to unauthorized destinations and to obtain authorization for this re-export from their own country when that is required. The AVF managers outside the U.S. will need to obtain pertinent Export Control Regulations from their respective countries.

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<sup>2</sup> Iran does not appear on any other list and has been included because they did submit a ballot on the Ada language as a voting member of ISO TC97.

#### 4.3 Finding: Requirements for an Individual Validated License

There are restrictions on performing on-site validation services for a compiler developer whose compiler operates on computers that are manufactured by Country Groups Q, W, Y, Z, the People's Republic of China, or Afghanistan (Ref. Section 379.4, paragraph (2)(iv) and Supplement No. 3, "List of Software Subject to This Supplement to Part 379" sub-paragraph (a)(1)).

**DISCUSSION:** When an implementer requests validation services for a host or target machine that is manufactured by a restricted country group, the implementer must provide written assurances that the "direct product" from the use of the ACVC will not be exported directly or indirectly to any unauthorized destination. The term "direct product" is defined to mean the immediate product (including processes and services) produced directly by use of the technical data (Ref. Footnote 1, Paragraph 379.4(2)(iv)). Distribution and use of the ACVC results in a direct product of testing and evaluation (namely an Ada compiler).

Supplement No. 3, sub-paragraph (a)(1) states that software designed or modified for any computer that is part of a computer series designed and produced within the restricted country groups, including the People's Republic of China, cannot be supplied without an individual validated license. The current validation procedures require that the test suite be tailored to operate on a specific host/target pair. This tailoring is a minor modification to the software, but there is no distinction made between major and minor modifications. An AVF must obtain an individual validated license to conduct on-site testing as a service performed using software that has been modified for computers produced by Bloc countries and others specified in these regulations.

**CONCLUSION:** All AVF managers should routinely require a signed "written assurance" form before distributing the ACVC to anyone. This form should also include some way of identifying the host/target manufacturer's country of origin. The identification of the country of origin for all computers is an important point since some Group V countries have computers from Bloc countries. When an AVF enters into a contract with a client for testing services, that contract should also include "written assurance" that the compiler, when successfully tested, will not be re-exported to an unauthorized destination. DoD Counsel may be able to provide standard clauses for AVF managers to incorporate into their contracts.

#### 5.0 RECOMMENDATIONS

The AJPO should take the following actions:

- (1) Formally transmit copies of U.S. Export Administration Regulations (Part 379 and supplements) to the AVF managers.
- (2) Seek advise from the DoD Counsel concerning the clauses that should be included in written assurances from individuals who request the ACVC.
- (3) Seek advise from the DoD Counsel concerning the clauses that should be included in a contract between an AVF and client for validation services.
- (4) Issue ACVC export policy based upon (1), (2), and (3).

## Appendix A COUNTRY GROUPS

For export control purposes, foreign countries are separated into eight country groups designated by the symbols "P", "Q", "S", "T", "V", "W", "Y", and "Z". Listed below are the countries included in each country group. Canada is not included in any country group and will be referred to by name throughout the Export Administration Regulations.

<b>Country Group P</b>	Guyana Surinam Venezuela
<b>Country Group Q *</b> Romania	
<b>Country Group S *</b> Libya	<b>Western Area</b> Bolivia Chile Ecuador (including the Galapagos Islands) Peru
<b>Country Group T</b> <i>North America</i> Northern Area: Greenland Miquelon and St. Pierre Islands  Southern Area: Mexico (Including Cozumel and Revilla Giedo Islands)	<b>Eastern Area:</b> Argentina Brazil Falkland Islands (Islas Malvinas) Paraguay Uruguay
<i>Central America</i> Belize Costa Rica El Salvador Guatemala Honduras (including Bahia and Swan Islands) Nicaragua Panama	<b>Country Group V</b> All countries not included in any other country group (except Canada) including China (PRC)*
<b>Bermuda and Caribbean Area:</b> Bahamas Barbados Bermuda Dominican Republic French West Indies Haiti (including Gonave and Tortuga Islands) Jamaica Leeward and Windward Islands Netherlands Antilles Trinidad and Tobago	<b>Country Group W *</b> Hungary Poland
<i>South America</i> Northern Area: Columbia French Guiana (including Inini)	<b>Country Group Y *</b> Albania Bulgaria Czechoslovakia Estonia German Democratic Republic (including East Berlin) Laos Latvia Lithuania Mongolian People's Republic Union of Soviet Socialist Republics
	<b>Country Group Z *</b> Cuba Kampuchea North Korea Vietnam

\*Bloc/Communist/Terrorist

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